

NARRATIVE REPORT

MALHEUR NATIONAL WILDLIFE REFUGE
REGION I

FY 1974

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Malheur National Wildlife Refuge
P. O. Box 113
Burns, Oregon 97720

Malheur National Wildlife Refuge
Burns, Oregon 97720

Narrative Report for Period July 1, 1973 through June 30, 1974

Roster of Permanent Personnel

Joseph P. Mazzoni	Refuge Manager
Alfred L. Radtke	Assistant Refuge Manager
Richard B. Gritman	Asst. Refuge Manager (P.U.)
Eldon L. McLaury	Wildlife Biologist (Mgt.)
Walter L. Anderson (LWOP status).	Wildlife Biologist (Mgt.)
Jeffrey W. Fleischer	Refuge Manager Trainee
Ivan J. Carey (Retired 12/31/73).	Management Assistant
Ernest A. Alfstad (EOD 2/3/74).	Administrative Specialist
Irma G. Gail	Clerk-Stenographer
Noel L. Cagle	Maintenanceman Foreman
Marvin L. Jess	Dragline Operator
Elmer D. Reynolds (Trans. 2/3/74)	Eng. Equipment Mechanic
Albert D. Ridgway, Jr. (Trans. 4/13/74)	Maintenanceman
Kenneth W. Hite (Trans. 6/23/74).	Maintenanceman
Norman J. Warneke	Maintenanceman
Quentin L. Currey	Maintenanceman

Roster of Temporary Personnel

Carroll D. Littlefield (7/1/73 - 9/30/73) (EOD 3/15/74)	Biological Aid
Richard R. Sjostrom (EOD 5/13/74)	Maintenanceman
Ruth W. Warneke (2/1/74 - 3/1/74)	Clerk-Typist
Susan M. Saul (Terminated 5/1/74)	Public Use Specialist
Cheryl L. McKenzie (Terminated 9/16/73)	Summer Aid
Cheryl R. Williams (Terminated 8/18/73)	Conservation Aid

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SIGNATURE PAGE

I. GENERAL

A. Weather Conditions

Total precipitation for the reporting period was 7.41 inches at headquarters, 11.63 inches at the P Ranch and 6.01 inches at the Double O. This compares to the 35 year average of 9.12, 10.86, and 8.61, respectively. Above normal rainfall was received in the fall of 1973 but had little effect on soil moisture since the refuge had a poor run-off in the spring of that year. The winter was mild, with moderate temperatures compared to 1972 when the cold weather caused wildlife losses. Snow pack was above normal on the mountains and an excellent run-off was received in the Blitzen Valley and Double O Unit. Spring and early summer rains were practically nonexistent. This marked the beginning of a dry period which extended through the summer and fall of 1974.

B. Habitat Conditions

1. Water

At the beginning of the reporting period several brood ponds were not being maintained at planned levels because of the below average run-off of 1973. A pond priority list was developed and inflow to several ponds was stopped when the water supply became low.

Because of the poor water conditions, the area from "P" Lane to Five-Mile on the west side of the Blitzen River and the area from Buena Vista Substation to Rockford Lane on the west side of the Blitzen River received little irrigation water for waterfowl breeding pair and crane habitat. Field flooding was done on a priority basis based on waterfowl production potential.

Double O brood water was limited to spring fed areas as the refuge received no flow from Silver Creek. Malheur Lake receded to 20,000 acres by August.

The ample run-off in the spring of 1974 provided irrigation of all breeding pair habitat in the Blitzen Valley and the Double O. Flooding was again done on a priority basis, with the Rockford Lane, Center Sagebrush and Northwest Big Sagebrush fields being irrigated first. All ponds were filled and being held at approved levels at the end of the period.

2. Food and Cover

The Blitzen Valley continued to provide a variety of habitat. Annual growth on the meadows provided nesting areas for late

nesting ducks such as gadwall and teal. Areas with residual cover necessary for early nesters, particularly the mallard, were generally lacking on the refuge. Several fields have been put into non-use from grazing and haying. As a result, willow thickets were also given protection for deer cover and songbird habitat. More of this deferment is planned for the future.

Water supplies for semi-permanent ponds were adequate, and provided favorable Canada goose and trumpeter swan nesting conditions. Brooding conditions were generally good in the Valley, although the productivity of Benson and East Knox Ponds was adversely affected by carp activity. Both ponds were dewatered at summer's end..

The mowed meadows provided excellent greater sandhill crane feeding sites. Crane nest in dense burreed stands throughout the valley, the quality of which continues to be diminished somewhat by livestock trampling during the winter grazing period. After the nesting season, the principal roosting site was West Buena Vista Pond.

As discussed in a later section, cereal grain production was rather spotty this year. Use by deer, cranes, geese and ducks was heavy wherever grain was available.

Malheur Lake's productivity was greatly curtailed by the high carp population. They adversely affected pondweed growth to the extent that little waterfowl food was produced. The major sago pondweed beds that did persist were found east of Cole Island Dike. The high carp population did provide an excellent food source for all fish-eating birds using the lake. Bulrush provided excellent cover and nesting sites for diving ducks.

The Double O area received excellent use during migrations. Snow geese and pintails especially like the flooded meadows. Ponds produced limited aquatic vegetation for food.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

- a. Trumpeter Swan - The 1973 breeding season began with 52 swans on the refuge. Six nests were located with only one known brood resulting. The fate of the other five nests is unknown. No swans nested on Malheur Lake for the first time since 1962.

The peak wintering population was 45 trumpeters, dropping to a breeding population in the spring of 1974 of 35 trumpeters and 1 whistler. The whistler and a trumpeter appeared to be paired, but did not attempt to nest.

- b. Whistling Swan - Fall and spring arrival dates were comparable to the previous year. Migration numbers were down. The peak fall use was 2,700 compared to 11,200 in 1972. Spring use was also down, peaking at 4,700 compared to 14,000 in 1973.

Total use days for whistling and trumpeter swans was 204,750. The objective is 449,000 use days. Increasing sago pondweed production in Malheur Lake would increase swan use. This could be achieved by carp reduction.

- c. Geese - Total goose use was 2,288,400 use days, far short of objective levels of 6 million use days. Use in 1974 was 41.5 percent less than 1973, due primarily to the high snow goose use experienced the latter year.

Snow geese peaked in the fall at 20,800 compared to 75,100 in 1973. This year's spring peak, 23,500, was higher than 1973's peak of 9,000.

Canada goose production was poor due to high predation rates. Only 680 goslings were raised to flight stage as compared to 1,630 last year. Pairs were down only 6 percent from last year (844 vs. 898). Nesting success was 27.3 percent in the Blitzen Valley. Poor quality nesting habitat combined with high raven, raccoon and coyote predation were the principal factors holding production down. The coyote population was particularly high.

- d. Ducks - Migrational use was below last year's level. The fall peak of 42,000 occurred October 16, much later than last year's peak on August 6-11 of 145,100. Due to the poor aquatic plant production in Malheur Lake, many migrants by-passed the area. The spring migration peaked at 35,000 the first week of April, compared to a peak of 73,000 on March 10 a year ago.

The objective for duck maintenance is 40 million use days. This year's use totaled only 9,759,450 use days. Again, it can be increased by providing more food in Malheur Lake.

The breeding population was estimated to be 12,300, 25.5 percent below last year. Mallard, gadwall, cinnamon blue-winged teal and redhead comprised 80.8 percent of the

population. Production, totaling 13,300, was 60.6 percent below last year's level. Lower nesting success was caused primarily by higher nest predation.

- e. Coots - Production was considerably lower in 1973 (6,700) than in 1972 (39,000), probably a result of increased predation.

Fall use was also down (peak of 15,400) compared to last year's peak of 52,000. The spring peak was similar to the fall's at 15,600 compared to 42,000 the previous year. Total annual use amounted to 3,112,350 use days. The poor plant production in Malheur Lake is again the principal reason.

2. Water and Marsh Birds

There were nine nesting colonies on Malheur Lake during 1973. The following table presents colonial nest estimates for the past three-year period.

	<u>Colonial Nesting Species</u>		
	<u>Malheur Lake</u>		
	<u>Nest Estimates*</u>		
	<u>1971</u>	<u>1972</u>	<u>1973</u>
Double-crested Cormorants	45	70	85
Great Blue Heron	110	150	200
Common Egret	150	285	230
Snowy Egret	35	80	125
Black-crowned Night Heron	750	750	775
White-faced Ibis	20	25	55
Franklin's Gull	400	500	1000
California Gull		10	80
Ring-billed Gull			25

*Includes nests not in colonies

Of special interest is the first sighting of a cattle egret east of the Cascade Range and the third sighting in Oregon. The egret was sighted August 13, 1974 on private meadowland north of Malheur Lake.

Greater sandhill cranes experienced a tremendous drop in production. The breeding population numbered 730 birds compared to 802 in 1972. Nesting success was only 20.4 percent. Predators accounted for 75.6 percent of the nests. In 1972, 45 young were raised compared to 3 in 1973. Increased predation was the cause. Ravens and raccoons took many nests, and coyotes took most of the young that did hatch.

3. Shorebirds, Gulls, and Terns

Population estimates, use, and production are shown in respective output reports in the Biological Files.

Objectives for this group of birds need to be updated. Objective level is 2,089,600 use days. During 1974, use amounted to 7,270,930 use days. Long-billed dowitchers and western sandpipers contributed a major portion of the use.

4. Doves

Doves were present in small numbers and no noticeable change was noted.

B. Upland Game Birds

Gallinaceous birds are recovering from the high loss in the winter of 1972-1973. In the spring of 1973, pheasant crow counts increased over 1972 from 55 to 242 percent. Apparently, production was quite poor, possibly due to predation, for crow counts in 1974 showed reductions of 26 and 50 percent in the Blitzen Valley. Populations did increase around Malheur Lake.

California quail are also recovering, based on increased size of coveys observed around headquarters.

C. Big Game

Deer numbers on the refuge decreased. The estimated population in 1973 was 690 compared to 770 in 1972. Trend counts in early September indicated a ratio of 17 bucks : 100 does : 27 fawns compared to 48 bucks : 100 does : 85 fawns in 1972.

Antelope numbers are similar to past years based on occasional observations.

D. Fur Animals, Predators, Rodents and Other Mammals

The muskrat population dropped sharply from last year. The aerial house count on Malheur Lake was conducted December 3, 1973. It was estimated 4,620 muskrats were using the lake, compared to 37,400 in 1972. Apparently in 1972 the population reached a climax and then dropped off.

Muskrats are thriving in permanent ponds in the Blitzen Valley, providing numerous waterfowl nest sites.

Beavers were at a fairly high level. They are seldom seen, but their dams cause problems to water movement around structures and canals.

General observations indicated that coyote populations had increased. However, the 50 stop coyote scent post study revealed that coyote visits to scent stations dropped 23 percent from 1972. Regardless of whether the population increased or decreased, coyotes held bird production down significantly. A cause for this may be due to the fact that small rodents and lagomorphs passed the peak of their cycle, leaving coyotes without a major food source.

E. Hawks, Eagles, Owls, Crows, Ravens, Magpies

There were four active golden eagle nests on or adjacent to the refuge. This was the same as last year. Total production is unknown.

Bald eagle use was similar to last year with 2,420 use days. Peak numbers were 26 compared to 30 last year.

No peregrine falcons were sighted this year. Prairie falcon use (850 use days) was 102 percent above last year. Rough-legged hawk use was down about 5 percent from last year.

Ravens and black-billed magpies are very abundant and cause high predation on bird nests.

F. Other Birds

Observations are on file in the Biological Files at headquarters.

The Christmas Bird Count was conducted December 15. Fifty-one species composed of 3,594 individuals compares to 5,561 individuals representing 53 species in 1972.

G. Fish

The Blitzen River, East Canal and Krumbo Reservoir afforded excellent recreation for fishermen. All continue to be put-and-take fisheries, augmented by a limited amount of natural reproduction in a portion of the Blitzen River and Krumbo Creek.

There were three plantings of rainbow trout, totaling 20,000, placed in Krumbo Reservoir between April 15 - June 7. The Blitzen received 3,000 in mid-June. All fish averaged nine inches in length.

Approximately 800 large-mouth bass were salvaged from Moon Reservoir and transplanted to Krumbo Reservoir. The threatened loss of these 1½ to 2 pound bass from low water levels prompted the experimental planting in Krumbo, where we have been considering converting from a rainbow trout to a bass fishery. The low fishing

pressure in Krumbo hardly warrants the expense of maintaining a trout fishery. The reservoir's roach population has had to be treated once every four or five years, at a cost of \$3,000 to \$5,000. The draw-down required has also conflicted with downstream waterfowl habitat irrigation needs.

H. Reptiles and Amphibians

General observations indicate that bullfrogs are rapidly increasing in the Blitzen Valley.

I. Disease

During the summer three antelope died in the display pen at headquarters. One was taken to Dr. Kistner, Department of Veterinary Medicine of Oregon State University. His diagnosis was the antelope died of bluetongue. The remaining four antelope apparently never contracted the disease for they remain healthy.

J. Other Losses

Powerlines and transformers continue to kill birds on and adjacent to the refuge. Several powerline checks and incidental findings resulted in the following mortalities:

1 - Great Horned Owl	- transformer
1 - Greater Sandhill Crane	- powerline
2 - Great Blue Heron	- "
3 - Golden Eagle	- transformer
1 - Turkey Vulture	- powerline
1 - Duck	- "
2 - Unidentified birds	- "

Areas where mortalities are concentrated are being investigated regarding possible methods to remove the hazard.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

A piling structure dam was built across the Blitzen River in the Springer Field. The primary purpose of this dam is to facilitate flooding of the Springer Field-Benson Boat Landing area for spring and fall migration use in conjunction with wildlife observation and environmental education programs in the headquarters area. The old Busse river bridge was replaced with a piling-steel beam bridge. New wood bridges were also constructed across the East Canal at Witzel Patrol Station and across the West Canal on Five Mile Lane.

A dike was completed around Krumbo grain field to facilitate irrigation and for future use as a brood pond. At the Double O, the Carp Pond dike was rebuilt, Dune Pond dike was constructed, and 30 acres of emergents in the Yriarte Field was developed into a brood pond (Tule Pond) with nesting islands.

Borrow pits were filled and leveled on Rattlesnake Butte and in the area north of Sod House Dam and rocks were buried along Kado Lane in an effort to improve the aesthetics of high public use areas. A road was constructed into the canoe route put-in area just north of Busse Bridge.

Major canals cleaned included the Stubblefield and Buena Vista canals. A direct inlet canal was dug from Stubblefield Canal to Pintail Pond and waterways leading from Pintail Pond to brood areas in the Center Sagebrush Field were cleaned to improve water control in a high priority duck nesting area.

The P Ranch residence was shingled and stained. The roofs of the bunkhouse, garage and laundry room at the P Ranch were also stained. All the headquarters buildings were painted under contract during the summer of 1974.

B. Plantings

1. Aquatic and Marsh Plants

None

2. Trees and Shrubs

Fifty Russian olive trees were planted on an island in the Blitzen River near the headquarters entrance. The plantings were done by school groups to provide cover for birds and deer which make heavy use of the island.

3. Upland Herbaceous Plants

All spoil banks and other exposed areas resulting from renovation and clean-up operations were seeded to a mixture of tall wheat grass, alfalfa and sweet clover in an effort to speed up revegetation and reduce erosion.

4. Cultivated Crops

Refuge personnel seeded approximately 120 acres of barley in East Buena Vista Field in 1973. Grain production was average and the cranes and geese quickly cleaned it up. An experimental grain plot of 10 acres including several varieties of

wheat and oats was seeded in the Krumbo grain field in conjunction with the Harney County Extension Service. The remaining 40 acres of the field was seeded to spring wheat. Grain production was spotty because of irrigation problems. Primary use of the grain in this field was by deer. Approximately 115 acres of West Knox Field was seeded to barley and oats by a permittee. Production was average and the Canada geese and sandhill cranes had cleaned up most of the grain before the permittee harvested his share.

In 1974, East Buena Vista Field, Krumbo Grain Field, Sod House Field and Upper Grain Camp Field were seeded to spring wheat by refuge personnel. Below normal spring precipitation caused poor grain production. Buena Vista Field did provide goose and crane food during fall migration. The Lava Bed Field which had been primarily emergents before being controlled burned in February, 1973, was disked and seeded to barley. The 200 acre field was not properly irrigated by the permittee and production was poor. Sandhill cranes made limited use of the field.

C. Collections and Receipts

1. Seeds or Other Propagules

None

2. Specimens

A total of 51 bird and mammal specimens were donated to various institutions during the period. A complete list of these donations is included on Form 3-249 - FY 1974.

D. Control of Vegetation

The refuge weed control program continued to be reduced in 1974. No spraying was done at the Double O and only whitetop and morning-glory were controlled in the Upper Blitzen Valley. The only Canada thistle control was done in the Sod House area as a cooperative gesture to adjoining private landowners in efforts to keep the plants out of their cultivated fields.

The county weed control district has little local support, primarily because of limited county acreage under cultivation. Pressure was applied to Federal Agencies, but without eradication plans on a watershed basis the control board realizes it is in a weak position to promote county-wide control.

E. Planned Burning

Control burning for emergent control and litter removal was completed in February on Bailey Field Pond (360ac.), White

Field (50 ac.) north of Benson Pond and Dune Pond (10 ac.) at the Double O. In addition, the major channels in the Willard, Hughett and Upper Swamp Fields (70 ac.) at the Double O were burned. All burns were considered excellent with most of the dead emergents and litter removed. Water was flooded over the burned areas in the spring.

A reduction of emergent density was noted in the Bailey Field and Double O burns especially. In channels at the Double O, emergent areas as large as 50 feet in diameter did not have regrowth in the spring. This appeared to make the marsh a more "broken" type habitat and more favorable to waterfowl use. The results of controlled burns this period were encouraging and several additional burns are planned for next year. However, mid-winter burns appear to be mandatory to avoid problems with peat soils.

F. Fires

None

IV. RESOURCE MANAGEMENT

A. Grazing

There was a total of 97,900 AUMs of grazing this year as compared to 126,593 the preceding year. This reduction was largely the result of the poor growing conditions and comparatively high water levels in Malheur Lake. However, a portion of this reduction was attributable to changes in the grazing program.

The Coyote Butte Field was placed in deferment. Haying only was initiated in the East South Meadow Field in conjunction with development of a new brood pond in that unit (the only semi-permanent brood water in the entire Sod House Unit). All fields along the Blitzen River between Grain Camp Dam and Rock Crusher Point were placed in deferment. The Witzel permit in the Krumbo Valley was revised to permit rest-rotational use. The Lower Center Field in that unit was placed in a haying only program. Haying only was also initiated in the Island Field. The principal objective of these changes was to begin to improve the quality of waterfowl nesting cover.

These changes, coupled with changes in the haying program, enforcement of Service policy on non-transferability of privileges (in conjunction with ranch sales), and retirement of two permits with sale of the ranches involved, stimulated a good deal of unrest among permittees and Harney County livestock interests generally. With the need for changes that exist in the vegetation

management program, we can anticipate that our relationship with local livestock interests will be an increasingly difficult one in the immediate years ahead.

B. Haying

Hay harvested for feeding on the refuge (either rake-bunched or stacked for later feeding) is billed out on an AUM basis. Thus, such feeding is recorded as grazing use. Forage considered harvested as hay, is forage harvested for feeding off refuge lands and sold on a tonnage basis.

The 1,974 tons of hay harvested this year is a substantial increase over the 236 tons harvested last year and the previous high of 258 tons harvested in Fiscal Year 1969. This represents the shift we are making away from the traditional rake-bunch haying/winter grazing program to haying only. The latter practice permits protection of uplands, stream and canal banks, and large blocks of cover that can be hayed or grazed on a rotational basis rather than annually year after year, as they have been in the past. This trend will continue in the future.

The traditional haying date of 7/15 was set back beginning last year to 7/25 on the basis of hatching chronology data, which revealed that over 46 percent of our duck hatch occurs after 7/16. This meant an actual change from about 7/4 in many areas such as the Upper Blitzen Valley and north Double O Unit, which have historically been hayed earlier than other areas of the refuge.

A requirement that 150 to 200 foot strips of cover be left standing adjacent to all roads, ditches, canals, etc., was also applied to haying operations this year in an initial effort to leave some residual cover. This approach can have only limited success with our haying/winter feeding program, but it was at least a start in the right direction. Our ultimate objective, of course, will be to leave large blocks of undisturbed residual cover that can be manipulated on a rotational basis.

C. Fur Harvest

During November and December of 1973, a special beaver trapping permit was issued to one trapper to remove problem beaver in the Blitzen Valley. A total of 69 was removed.

Commercial trapping permits were issued to two people for harvest of coyotes. A total of 11 was taken between January 5-26.

This was the first commercial coyote trapping program we've had at Malheur not justified as a "predator control" program.

The muskrat population decreased on Malheur Lake from an estimated 37,400 to 4,600. Trapping permits were issued to six permittees. A total of 2,887 muskrats and one raccoon were harvested.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Reports

1. Cronan, James Z. - "Heat Energy Exchange between the Killdeer, its Eggs, and the Environment." - MLH #10.
Objective: The goal of this study was to determine how and to what degree killdeer control the temperature of their eggs during the hot days of early summer. Study completed. Final report on file.
2. Davis, Deborah - "Roosting Behavior of the Turkey Vulture (Cathartes aura)" - MLH #11. Objective: The purpose of this study was to investigate roosting and roosting-related activities in the turkey vulture and also to correlate environmental factors which might influence these activities. Social interactions and courtship and maintenance behavior were to be described. Various roosting behavior patterns were to be related to wind, light intensity, temperature, precipitation, etc. Study completed. Final report on file.
3. Feldhamer, George - "Distribution and Abundance of Mammals on Malheur National Wildlife Refuge" - MLH #9.
Objective: To determine the distribution and abundance of mammals on the refuge relative to selected parameters of the habitat. These include vegetation type, soil type and water. Progress report on file. Scheduled to complete field work during early summer, 1975.
4. Furniss, Sean - "Mortality Rates and Migrational Movements of Mallards Banded at Malheur National Wildlife Refuge" - Objectives:
 1. Determine mortality rates of mallards banded in the Harney Basin, Harney County, Oregon.
 2. Determine migratory movements of mallards banded in the Harney Basin.
 3. Evaluate changes in mortality rates and migratory movements during the years 1929 to 1972.
 Study completed. Final report on file.

5. Wittenberger, James F. - "An Ecological Study of the Bobolink Population at Malheur National Wildlife Refuge" - MLH #8. Objectives:
 1. Map bobolink use areas on refuge.
 2. Determine population densities by use areas.
 3. Determine habitat requirements of the bobolink, to include water, vegetation and food supply.
 4. Determine breeding chronology as related to land use practices.
 5. Devise management guidelines for bobolinks on the basis of the available data pertaining to habitat requirements and resource availability, as well as present habitat characteristics of the various use areas. Progress reports on file. Scheduled to complete field work in summer, 1975.
6. Jarvis, Robert and John Clark - "Effects of Experimental Management Schemes on Production and Nesting Ecology of Ducks at Malheur National Wildlife Refuge." - Objectives:
 1. Determine effects of restricted mowing and no winter grazing on production of ducklings.
 2. Determine effects of restricted mowing and no winter grazing on the security and attractiveness of nesting cover.
 3. Determine the relationship of interspersation of nesting cover types, open water types and water areas supporting stands of emergent vegetation, to duck production.
 4. Determine the amount and quality of forage produced

Progress report on file. Field work continuing in summer, 1975.

B. Waterfowl Banding

The annual goose drive during June of 1974 was more successful than anticipated with 140 flightless geese banded as compared with 21 banded the previous year. BLM personnel, MEFS students, and YCC youths participated in both drives (Benson Pond and Knox Pond).

Preseason banding netted 396 mallards, 581 pintails, and 60 other ducks for a total of 1,037 ducks banded.

C. Banding of Other Birds

1973 was a successful year for the banding and marking of greater sandhill cranes. Crane researcher C. D. Littlefield netted and banded 55 cranes during the summer months. Each crane was also marked for field identification.

A total of 29 non-waterfowl species was banded during the spring and summer months, including 1 common loon, 2 golden eagles and 148 bobolinks (in conjunction with Wittenberger's study, MLH #8).

D. National Breeding Bird Surveys

Refuge personnel participated in taking three surveys at Blitzen, Princeton, and Fish Lake. These are surveys conducted for the Migratory Bird Population Station.

E. Mid-Winter Eagle Survey

Refuge personnel also conducted an annual winter eagle count. Two adult bald eagles and 20 adult and one immature golden eagles were observed. This compares with two adult and three immature balds and 12 adult and one immature goldens in 1973.

VI. PUBLIC RELATIONS

A. Recreational Uses

Refuge visitation increased during FY 1974 to ^{45,500}~~46,243~~. This represents an increase of 23 percent over the 37,445 visitors in 1972.

During FY 1974, the refuge staff presented 34 evening programs, 44 tours, environmental education lessons to 15 school groups, and 32 talks and demonstrations. In all, there were 93 on-refuge programs and 32 off-refuge programs presented, for a total of 125. Sixty-five percent (or 81) of these tours and programs were presented to college, high school and grade school groups. College groups represented the largest number, with 43 being given programs. There were talks and tours given to 17 high school classes, and 21 given to junior high and grade school groups, with another 44 programs given to special interest groups.

The growing success of the Malheur Environmental Field Station has been largely responsible for the increased use of the refuge by organized school and other groups. As availability of its facilities has become known, groups from as far away as Pennsylvania and Wisconsin have come to the refuge. Grade school and high school groups from Oregon, Washington and Idaho have taken advantage of the dormitories and low food rates at the Field Station.

The comparatively high degree of personal services provided in FY 1974 is being offset in FY 1975 through the use of self-guiding tour guides and Eco-notes for teachers. Additionally, Environmental Education lesson plans and study kits have been prepared, in an effort to take the refuge staff out of the teaching role.

During FY 1974, camping on the refuge was largely phased out. Some camping still occurs as part of the fishing experience at Krumbo Reservoir, with most of this occurring in self-contained camper units. Considering the isolation of the refuge, there has been surprisingly little public concern expressed by the phaseout of camping in the hunting areas, and at headquarters. This may be due in part to the availability of dormitory space and food services to groups and the general public at the Field Station.

In analyzing our public use, we have found that 88 percent of our visitors come to the refuge strictly for the purpose of observing wildlife. Again, because of our isolation, the general visitor is usually a part of a family group who has planned its trip to the refuge. Their average stay is 17 hours, based on 10 months of data collected during 1973 and 1974. The result of this high quality visitation is an almost complete lack of vandalism and litter.

The increased number of visitors has brought about an increase to the number of visitors that come to the office to ask questions. This process has had its effect on the efficiency of the office operation. During the peak periods of visitor use, any member of the staff can count on being interrupted at least once an hour for a 5 to 15 minute question/answer period. Many of the questions are basic, and center around where to go, what to do, and what new bird arrivals have been reported. Efforts to answer these questions on informational displays have been made in the museum. However, with the office so readily available next to the museum our visitors would rather have a person to person conversation than read the information provided. Hopefully this can be somewhat corrected with a comprehensive headquarters site plan, and the resulting move of the office.

B. Refuge Visitors

A record of refuge visitors is on file.

C. Refuge Participation

A record of refuge participation is on file.

D. Hunting

1. Waterfowl

Waterfowl hunting on the Malheur Lake Marsh continues to be a quality experience, particularly when one considers the low hunting pressure and the wilderness character of the marsh. In all, some 521 hunters took advantage of the opportunity, and were successful in taking 1,164 birds.

2. Deer

A quirk in the weather turned the Malheur deer archery hunt into an unsuccessful exercise. A long, dry weather spell over most of the state caused an emergency fire closure for most of the public lands open to archers. The result was a three fold increase in the hunting pressure on the refuge, with some 650 archers taking to the field on the opening weekend. This sheer mass of people forced the deer off the area shortly after sunrise on opening day. The results of the ten-day hunt tell the story; 1,289 hunters bagged only 18 deer.

Plans for the FY 1975 hunt call for a coordinated effort with Hart Mountain to open the archery hunt in the middle of the week in an effort to lessen the opening day impact due to overcrowding by hunters. This should increase the quality of the hunt if not hunter success.

3. Upland Game

The long unseasonable cold spell during the winter of 1972 (-30° for a week) destroyed a large percentage of the upland game populations. As a result, the 88 hunters who took part in the hunt were successful in taking only 10 pheasants and 20 quail.

E. Violations

During December 1973, two trumpeter swans, while sitting on the ice on Witzel Pond, were shot by two individuals using high-powered rifles. Subsequent investigation led to the apprehension and conviction of the two individuals involved. The Oregon State Police handled the entire investigation. It was through information provided by a refuge neighbor that led to the apprehension nearly a month after the incident. Once again, this points out the fine cooperation we have been getting from both the State Police and our refuge neighbors.

F. SAFETY

1. Meetings

Three general and three committee meetings were held this year. Station SAFETY inspections and fire drills were held in conjunction with the meetings.

2. Accidents

It was determined by F.E.C. during the fiscal year that Jack Dalton's heart attack was not job related. Jack retired during FY 1973 under a disability retirement.

Two minor accidents occurred, one of which required medical attention.

There was no-lost-time involved in either case.

3. Inspections and Corrective Actions

Jane Lewis, R.O. Safety and Training Officer, inspected the refuge headquarters area and the YCC Camp facilities on June 20 and 21.

Some of the corrective SAFETY measures undertaken during the year included: continuing to up-grade our soda-acid fire extinguishers to the dry chemical type; purchased aluminum extension ladders; barriers constructed at gas pump locations; snag bars purchased for chain saws; purchased new hard hats and ear protection equipment; installed hand-rail to basement; and, reflectors were installed on bridges.

4. Record

As of June 30, 1974, we have had 455 days without a lost-time-accident.

VII. OTHER ITEMS

A. Items of Interest

Refuge Biologist Eldon McLaury presented a waterfowl banding demonstration for some 6,500 scouts at the National Scout Jamboree at Farragut State Park, Idaho.

September was the beginning of the new Environmental Education program prepared by the refuge. The first study plans were presented to the Burns-Hines school boards who in turn voted unanimously to both approve and endorse them. The Burns Junior High School Science class took the first, four-hour EE program on September 20. It was met with enthusiasm from both teacher and students.

A 15' x 6' pictorial display put together by the refuge staff was viewed by over 7,000 visitors attending the annual Harney County Fair in Burns and was awarded a Fourth Premium ribbon for its quality.

Refuge personnel Gritman, Cagle, Warneke, Ridgway and Hite attended Emergency Medical Training sessions given in Burns. The 80 hours of training has qualified the employees for certificates as Emergency Medical Technicians by the State of Oregon.

Refuge personnel, retirees and spouses gathered at the Pine Room in Burns on February 15 for a retirement dinner honoring Ivan J. "Bug" Carey and Robert Carlson and his wife, Evelyn. Certificate of Service plaques were presented to the retirees by Manager Mazzoni.

The refuge staff basketball team (the Duck Chasers) played the Crane High School teachers and local ranchers (the Drug Store Cowboys) in an exciting benefit game at Crane on March 11. The refuge lost, but over \$2,000 was raised to help offset medical expenses of a local youth seriously injured in an auto accident.

Maintenance Foreman Cagle taught a First Aid class for local residents at Frenchglen during March and April.

Jan Chavez, EEO Specialist, visited the refuge in March and also explained the YCC program to local youngsters at the Burns Union High School.

During the weekend of May 4 and 5, the presidents of 11 Oregon colleges and universities, and the Chancellor of the Oregon

division of Higher Education came to the Malheur Environmental Field Station to see the facility and the refuge. A tour of the refuge was provided for the group.

Assistant Regional Refuge Supervisor Russell inspected the refuge June 11 and 12 and was accompanied by Messrs. Ken Larsen and Dan Hayes on his trip to Malheur.

Manager Mazzoni attended a meeting in Portland with Messrs. Russell, Vorderstrasse and McVein concerning planning for the Harney-Malheur Lakes Basin Study. \$75,000 will be available to implement this basin environmental study in FY 75. The study has been designed to develop information basic to decisions affecting future land and water use in the basin, with the objective being to ensure that migratory bird resource values will be preserved.

Time-Life photographer Dan McCoy spent ten days on the refuge obtaining photographs of proposed wilderness areas for one of Time-Life's forthcoming books on the Great Basin wilderness areas.

A reconnaissance of refuge archaeological resources was completed in the Blitzen Valley by a College Work Study team under the direction of Archaeologist Dr. Tom Newman of Portland State University. This was the second year of a three-year contract to develop an inventory of all refuge archaeological resources. Refuge costs were limited to paying 20 percent of the two graduate archaeology students' salaries.

In cooperation with the Oregon State University Extension Service, we participated in the NYC program utilizing seven students for the summer period. A college work study student from Oregon State University also assisted with the public use program during the summer of 1973.

The Malheur Environmental Field Station experienced a 64 percent increase in student enrollment during its third year, with 143 students signing up for the summer programs of college level courses. Sixteen, three-week courses were given on a variety of environmental subjects. Weekly evening seminars were also held on such subjects as range management, pesticides and climatic factors in the high desert. Five graduate students also headquartered at the station while doing research work in the area.

The refuge hosted a resident YCC Camp beginning June 23, 1974, for 25 Oregon youth. The facilities of the Malheur Environmental Field Station served as a base for the youngsters who accomplished

a variety of outdoor work projects dealing with the environment. Southern Oregon College was awarded the summer YCC contract for the amount of \$27,126.


Refuge Manager Mazzoni was named chairman of the Harney County Bicentennial Committee, president of the Harney County Historical Society, chairman of the High Desert Parks and Recreation District Board of Directors, and chairman of the Chamber of Commerce Natural Resources Committee. He also served as a member of a special County Science Curriculum Review Committee.

One hundred twenty-six "Bills for Collection" totalling \$212,380.39 were issued for the period July 1, 1973, through June 30, 1974. Payment to the county was \$72,928.48.

Personnel changes during the year were: Ivan Carey retired December 31, 1973. Elmer Reynolds transferred to GSA on February 3, 1974, in conjunction with our conversion to GSA motor pool equipment. Ernest Alfstad, who replaced Ivan Carey transferred from Tewaukon NWR, North Dakota on February 3, 1974. Albert Ridgway transferred to Squaw Creek NWR, Missouri on April 13, 1974. Susan Saul's Appointment expired on May 1, 1974. She was later employed as Public Use Specialist for Ridgefield NWR, Washington. Kenneth Hite transferred to Bear Lake NWR, Idaho on June 23, 1974.

SIGNATURE PAGE

Submitted by:


(Signature)
Joseph P. Mazzoni

Refuge Manager
(Title)

Date: March 7, 1975

Approved: Regional Office:

Date: _____

(Signature)

(Title)